

CLAIMS

What is claimed is:

- 5 1. A method for controlling a limit to which a door may be opened, said method comprising:

determining an obstacle distance, said obstacle distance
being representative of a distance between said door and an
10 obstacle in a door opening path of said door;

providing a limit signal related to said obstacle distance;
and

- 15 applying said limit signal to a door opening limit apparatus to effectively set an allowable limit to which said door can be opened, said allowable limit being less than said
obstacle distance.

- 20 2. The method as set forth in claim 1 and further including:

selectively enabling an override of said allowable limit by
an exertion of additional force to open said door farther
after said door has been opened to said allowable limit.

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3. The method as set forth in claim 1 wherein said door is a
swingable door, and said setting of said allowable limit is
implemented using a blocking device for physically
preventing opening of said swingable door beyond said
30 allowable limit.

4. The method as set forth in claim 3 wherein said limit
signal is applied to a limit motor, said limit motor being
operable in response to said limit signal to position a

limit element effective to prevent opening of said swingable door beyond said allowable limit.

5. The method as set forth in claim 4 and further including means for causing linear movement of a door position element in response to a rotational movement of said swingable door, said allowable limit being reached when said door position element abuts said limit element during an opening of said swingable door.

6. The method as set forth in claim 1 wherein said determining is accomplished using a distance measuring device.

7. The method as set forth in claim 6 wherein said distance measuring device includes a radar system.

8. The method as set forth in claim 6 wherein said distance measuring device includes a sonar system.

9. The method as set forth in claim 6 wherein said method is implemented in a movable vehicle having a plurality of swingable doors, said distance measuring device being installed in at least one of said swingable doors.

10. The method as set forth in claim 6 wherein said movable vehicle is a motor vehicle, said motor vehicle further including processing means for processing said limit signal.

11. The method as set forth in claim 10 wherein said motor vehicle further includes alarm means for providing a perceivable alarm signal when an obstacle has been detected in said door opening path of said one of said swingable doors.

12. The method as set forth in claim 11 wherein said perceivable alarm signal is an audio signal.

5 13. The method as set forth in claim 11 and further including a display device, said perceivable alarm signal being a message display presented on said display device.

10 14. The method as set forth in claim 1 and further including:

terminating said method when an emergency condition is detected.

15 15. A storage medium including machine readable coded indicia, said storage medium being selectively coupled to a reading device, said reading device being selectively coupled to processing circuitry within a computer system, said reading device being selectively operable to read said
20 machine readable coded indicia and provide program signals representative thereof, said program signals being selectively operable for controlling a limit to which a door may be opened by effecting the steps of:

25 determining an obstacle distance, said obstacle distance being representative of a distance between said door and an obstacle in a door opening path of said door;

providing a limit signal related to said obstacle distance;
30 and

applying said limit signal to a door opening limit apparatus to effectively set an allowable limit to which said door can

be opened, said allowable limit being less than said obstacle distance.

16. The medium as set forth in claim 15 and further including:

selectively enabling an override of said allowable limit by an exertion of additional force to open said door farther after said door has been opened to said allowable limit.

17. The medium as set forth in claim 15 wherein said door is a swingable door, said setting of said allowable limit being implemented using a blocking device for physically preventing opening of said swingable door beyond said allowable limit.

18. The medium as set forth in claim 17 wherein said limit signal is applied to a limit motor, said limit motor being operable in response to said limit signal to position a limit element effective to prevent opening of said swingable door beyond said allowable limit.

19. The medium as set forth in claim 18 and further including means for causing linear movement of a door position element in response to a rotational movement of said swingable door, said allowable limit being reached when said door position element abuts said limit element during an opening of said swingable door.

20. The medium as set forth in claim 15 wherein said determining is accomplished using a distance measuring device.

21. The method as set forth in claim 15 wherein said distance measuring device includes a radar system.

22. The method as set forth in claim 15 wherein said
5 distance measuring device includes a sonar system.

23. The medium as set forth in claim 15 wherein said reading device is installed in a movable vehicle, said movable vehicle having a plurality of swingable doors, said radar
10 device being installed in at least one of said swingable doors.

24. The medium as set forth in claim 21 wherein said movable vehicle is a motor vehicle, said motor vehicle further
15 including processing means for processing said limit signal.

25. The medium as set forth in claim 24 wherein said motor vehicle further includes alarm means for providing a perceivable alarm signal when an obstacle has been detected
20 in said door opening path of said one of said swingable doors.

26. The medium as set forth in claim 25 wherein said perceivable alarm signal is an audio signal.
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27. The medium as set forth in claim 25 and further including a display device, said perceivable alarm signal being a message display presented on said display device.

30 28. The medium as set forth in claim 15 and further including:

terminating said method when an emergency condition is detected.

29. A system for controlling a limit to which a door may be opened, said system comprising:

5 a system bus;

a CPU device connected to said system bus;

a display device connected to said system bus;

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memory means connected to said system bus; and

measuring means for determining an obstacle distance, said obstacle distance being representative of a distance between
15 said door and an obstacle in a door opening path of said door, said measuring means being operable for providing a limit signal related to said obstacle distance; and

door opening limit apparatus arranged to receive said limit
20 signal and effectively set an allowable limit to which said door can be opened, said allowable limit being less than said obstacle distance.

30. A method for providing a perceivable indication to
25 occupants of a vehicle when an obstacle is present in a door opening path of said vehicle, said method comprising:

determining an obstacle distance, said obstacle distance being representative of a distance between said obstacle and
30 a door of said vehicle; and

providing a perceivable indication to one or more occupants of said vehicle, said perceivable indication being related to said obstacle distance.

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